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The Claims

Please consider the claims as follows:

1.   (original) Apparatus, comprising:

a primary storage module, for storing an initial portion of each of a plurality of titles;

a secondary storage module, for storing at least a remaining portion of at least one of said plurality of titles; and

a controller, for processing user requests and causing said primary storage module to begin providing an output stream including an initial portion of a requested title;

said secondary storage module provisioning said primary storage module with a remaining portion of said requested title such that said output stream includes said initial portion and said remaining portion of said requested title.

2.   (original) The apparatus of claim 1, wherein said primary storage module comprises a disk drive array and said secondary storage module comprises at least one of a magneto-optical drive and a magnetic tape drive.

3.   (original) The apparatus of claim 1, wherein said primary storage module comprises a plurality of server modules, each of said server modules having associated with it a respective disk drive array, each of said server modules being capable of servicing a plurality of users.

4.   (original) The apparatus of claim 3, further comprising:

a switch, for multiplexing the respective output streams of said server modules to form therefrom a multiplexed output stream.

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5.   (original) The apparatus of claim 4, wherein each of said server modules has associated with it a respective output buffer capable of storing at least one service period of said respective server module output stream.

6.   (original) The apparatus of claim 1, further comprising:
        a transport processor, for receiving an output stream from said primary storage module and causing said output stream to be transported to at least one requesting user via a distribution network.

7.   (original) The apparatus of claim 1, further comprising:
        a plurality of server modules, each of said server modules being associated a respective disk array, wherein:
        a server module for storing at least an initial portion of a title operates as a primary storage module with respect to that title, and a server module storing a remaining portion of said title operates as a secondary storage module with respect to that title.

8.   (original) The apparatus of claim 7, wherein a first server module operating as a primary storage module with respect to a requested title is provisioned by a second server module operating as a secondary storage module for said requested title.

9.   (original) The apparatus of claim 7, further comprising:
        a switch, coupled to each of said server modules via a buffer, for multiplexing the output streams of each of said server modules to produce therefrom a multiplexed output stream for subsequent transport.

10.   (original) The apparatus of claim 9, further comprising a transport processor, for adapting the multiplexed output stream primary storage switch for transporting requested titles to requesting users via a forward application transport channel (FATC).

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11. (original) The apparatus of claim 9, wherein each of said respective server module buffers comprises a respective portion of a common memory module, said switch further comprising a direct memory access (DMA) output table for identifying the appropriate portions of the common memory module including data to be retrieved and provided to said switch output.

12. (original) The apparatus of claim 8, wherein:

each of said server modules is capable of servicing a plurality of users, and an overutilized server module is capable of migrating serviced users to an underutilized server module.

13. (original) Apparatus, comprising:

an information server, for storing at least an initial portion of each of a plurality of titles;

a controller, for processing user requests and causing said information server to begin providing an output stream including at least said initial portion of a requested title to a transport processor; and

a remote storage module, for storing at least a remaining portion of at least one of said plurality of titles, said remote storage module providing as necessary to said information server said remaining portion of requested titles.

14. (original) The apparatus of claim 13, wherein said transport processor adapts said information server output stream to a format suitable for use in a forward application transport channel (FATC) delivering requested titles to users.

15. (original) In an interactive information distribution system including provider equipment and subscriber equipment, said provider equipment communicating with said subscriber equipment via a network, provider apparatus comprising:

a controller, for interacting with subscribers to receive title requests;

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an information server, for storing titles and providing an output stream including titles requested by said subscribers; and

a transport processor, for transport encoding said output stream for subsequent distribution via said network;

said information server comprising a plurality of server modules, each of said server modules operating as at least one of a primary storage module and a secondary storage module, wherein a primary storage module store at least initial portions of a title and responsively provide said output stream including said initial portion of said title, and said secondary storage module stores at least a remaining portion of said title and provisions said primary storage module with said remaining portion of said title.

16. (original) The apparatus of claim 15, wherein each server module is operably coupled to at least one primary storage device for storing at least an initial portion of each of a plurality of available content streams, and at least one secondary storage device for storing the remaining portion of at least one of said content streams.

17. (original) The apparatus of claim 16, wherein said primary storage device comprises a disk drive array and said secondary storage device comprises at least one of a magneto-optical drive and a magnetic tape drive.

18. (original) The apparatus of claim 15, further comprising:

a switch, coupled to each of said server modules via a respective buffer, for multiplexing the respective output streams of said server modules to form therefrom a multiplexed output stream.

19. (original) The apparatus of claim 18, wherein each of said respective server module buffers comprises a respective portion of a common memory module, said switch further comprising a direct memory access (DMA) output table for identifying the appropriate portions of the common memory module to be retrieved and provided to said switch output.

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20. (original) The apparatus of claim 19, wherein each respective buffer is capable of storing at least one service period of said respective output stream.

21. (original) A method, comprising the steps of:
accessing a content stream including at least an initial portion of a requested title, said initial portion being stored in a primary storage device;
initiating the streaming of said accessed content stream to a requesting user;
determining a location of a content stream including a remaining portion of said requested title; and
provisioning said primary storage device with said content stream including said remaining portion of said requested title.

22. (original) The method of claim 21, wherein said content stream including said remaining portion of said requested title is stored on a secondary storage device.

23. (original) The method of claim 22, wherein said primary storage device comprises one of a plurality of server modules having stored therein said content stream including said initial portion of said requested title; and
said secondary storage device comprises one of a plurality of server modules having stored therein said content stream including said remaining portion of said requested title.

24. (original) The method of claim 23, wherein each of said server modules functions as at least one of a primary storage device and a secondary storage device, wherein a server module storing a content stream including an initial portion of a title operates as a primary storage device with respect to that title, and a server module storing a content stream including a remaining portion of said title operates as a secondary storage device with respect to that title.

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25.   (original) The method of claim 23, wherein each of said server modules is
capable of servicing a plurality of users, said method further comprising:

       determining a utilization level for each server module; and

       migrating at least one user from an overutilized server module to a non-
overutilized server module.

26.   (original) Method of claim 21, further comprising:

       migrating a user receiving said content stream from said primary storage device
to said secondary storage device where said secondary storage device comprises a
server module.

27.   (original) Method of claim 21, further comprising:

       migrating a user receiving said content stream from said primary storage device
to said secondary storage device when a user load balancing among storage devices is
appropriate.

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